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Differential carrier with an increased strength

Claims

1. A differential carrier (11) for a differential drive, which differential carrier (11) has to be supported so as to be rotatably drivable around its longitudinal axis A, containing sideshaft gears (18, 19) which are supported in the differential carrier so as to be coaxially rotatable around the longitudinal axis A, containing differential gears (20, 21) which are supported in the differential carrier (11) on axes of rotation R positioned radially relative to the longitudinal axis A and which meshingly engage the sideshaft gears (18, 19), as well as containing a multi-plate coupling (41) which is arranged in the differential carrier (11) so as to extend coaxially relative to the longitudinal axis A and which is arranged so as to be effective between a first one of the sideshaft gears (19) on the one hand and the differential carrier (11) or the second one of the sideshaft gears (18) on the other hand, wherein the differential carrier (11) comprises a flange (16) to which a ring gear can be bolted,

characterised in

that the differential carrier (11) is formed of a dish-shaped part (14) comprising a base (22) and an integrally formed-on flange (16) and of a cover (15) which is inserted into the dish-shaped part and which is axi-

ally fixed by an annular securing element (17),
and that the cover (15) and the multi-plate coupling
(41) - with reference to a plane extending through the
axes of rotation R of the differential gears (20, 21) -
are positioned in the differential carrier (11) on the
side located opposite the base (22) and the flange (16).

2. A differential carrier according to claim 1,

characterised in

that the flange (16) is arranged so as to substantially
axially overlap the base (22) of the dish-shaped part
(14).

3. A differential carrier according to any one of claims 1
or 2,

characterised in

that there is provided an actuating device (51, 71) for
actuating the multi-plate coupling (41).

4. A differential carrier according to claim 3,

characterised in

that the actuating device (51) is arranged inside the
differential carrier (11).

5. A differential carrier according to claim 4,

characterised in

that the actuating device (51) constitutes a differential-speed-sensing device, more particularly a shear pump device of the Viscolok type.

6. A differential carrier according to claim 4,

characterised in

that the housing of the differential-speed-sensing device is at least partially formed by the cover (15) of the differential carrier (11).

7. A differential carrier according to claim 3,

characterised in

that the actuating device (71) is arranged outside the differential carrier (11).

8. A differential carrier according to claim 7,

characterised in

that the actuating device is provided in the form of an externally controllable device, more particularly a ball ramp setting device.

9. A differential carrier according to claim 8,

characterised in

that the ball ramp setting device is supported on a sleeve projection (13') at the cover (15') of the differential carrier (11').

10. A differential carrier according to any one of claims 1 to 9,

characterised in

that the annular securing element (17) is provided in the form of a threaded ring which is turned into an inner thread (46) in the dish-shaped part (14).

11. A differential carrier according to claim 10,

characterised in

that the threaded ring comprises at least one bore (47) which cuts into an outer circumferential face of the threaded ring and into which there is pressed a rotation-preventing securing element (48).

12. A differential carrier according to any one of claims 1 to 9,

characterised in

that the annular securing element (17) is provided in the form of a locking ring which is positioned in an annular groove in the dish-shaped part (14).